

**Visualization methods for the comparison of hierarchies vs user's tasks for the comparison of biological taxonomies**

**User Study – Activities**

**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Start:** \_\_\_\_\_ **End:** \_\_\_\_\_

1. Please consider *type of change* as: splits, merges, moves, renames, new taxa added and taxa excluded.

a) *Go to the Matrix tab*: By visually inspecting the taxonomies, which would you say is the most common type of change between the two taxonomies?

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b) *Go to the Animation tab*: By visually inspecting the taxonomies, which would you say is the most common type of change between the two taxonomies?

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c) *Go to the Agglomeration tab*: By visually inspecting the taxonomies, which would you say is the most common type of change between the two taxonomies?

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d) *Go to the Edge Drawing tab*: By visually inspecting the taxonomies, which would you say is the most common type of change between the two taxonomies?

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e) How good do you think is each method in order to identify the most common type of change?

	Poor			Excellent		Why?
<i>Edge drawing:</i>	1	2	3	4	5	
<i>Matrix:</i>	1	2	3	4	5	
<i>Animation:</i>	1	2	3	4	5	
<i>Agglomeration:</i>	1	2	3	4	5	

2. a) Go to the Animation tab: Into what taxa “Hyalinobatrachium talamancae” was split?

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b) Go to the Matrix tab: Into what taxa “Babina caldweli” was split?

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c) Go to the Edge Drawing tab: Into what taxa “Rhyacotriton variegates” was split?

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d) Go to the Agglomeration tab: Into what taxa “Amolops aniqiaoensis” was split?

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3. a) Go to the Agglomeration tab: Which species was split most?

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b) Go to the Matrix tab: Which species was split most?

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c) Go to the Edge Drawing tab: Which species was split most?

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d) Go to the Animation tab: Which species was split most?

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e) How good do you think is each method in order to identify splits?

	Poor		Excellent			Why?
Edge drawing:	1	2	3	4	5	
Matrix:	1	2	3	4	5	
Animation:	1	2	3	4	5	
Agglomeration:	1	2	3	4	5	

4. a) Go to the *Edge Drawing* tab: Was species “*Babina holsti*” merged with any other species?

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- b) Go to the *Matrix* tab: Was species “*Bolitoglossa altamazonica*” merged with any other species?

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- c) Go to the *Animation* tab: Was species “*Cochranella nola*” merged with any other species?

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- d) Go to the *Agglomeration* tab: Was species “*Incillius periglenes*” merged with any other species?

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5. a) Go to the *Edge Drawing* tab: With which other species was “*Cochranella erminea*” merged?

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- b) Go to the *Matrix* tab: With which other species was “*Cacelia abitaguae*” merged?

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- c) Go to the *Animation* tab: With which other species was “*Bolitoglossa altamazonica*” merged?

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- d) Go to the *Agglomeration* tab: With which other species was “*Incillius fastidiosus*” merged?

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e) How good do you think is each method in order to identify merges?

	Poor			Excellent		Why?
<i>Edge drawing:</i>	1	2	3	4	5	
<i>Matrix:</i>	1	2	3	4	5	
<i>Animation:</i>	1	2	3	4	5	
<i>Agglomeration:</i>	1	2	3	4	5	

6. a) *Go to the Animation tab:* Which is the new name for taxon “*Aneides ferreus*”?

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b) *Go to the Edge Drawing tab:* Which is the new name for taxon “*Amolops belullus*”?

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c) *Go to the Agglomeration tab:* Which is the new name for taxon “*Exorodonta juanita*”?

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d) *Go to the Matrix tab:* Which is the new name for taxon “*Dendrobates auratus*”?

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7. a) *Go to the Animation tab*: Execute the animation in order to identify which was the previous name of “*Acris Illusgry*”?

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b) *Go to the Edge Drawing tab*: Which was the previous name of “*Gastroheca bati*”?

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c) *Go to the Agglomeration tab*: Which was the previous name of “*Exerodonta buniteus*”?

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d) *Go to the Matrix tab*: Which was the previous name of “*Dendrobates orotius*”?

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e) How good do you think is each method in order to identify renaming of taxa?

	Poor			Excellent		Why?
<i>Edge drawing:</i>	1	2	3	4	5	
<i>Matrix:</i>	1	2	3	4	5	
<i>Animation:</i>	1	2	3	4	5	
<i>Agglomeration:</i>	1	2	3	4	5	

8. a) *Go to the Animation tab*: Which species were moved to genus “*Amolops*”?

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b) *Go to the Edge Drawing tab*: Which species were moved to genus *Babina*?

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c) *Go to the Agglomeration tab*: Which species were moved to genus *Hyalinobatrachium*?

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d) *Go to the Matrix tab*: Which species were moved to genus *Hyalinobatrachium*?

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e) How good do you think is each method in order to identify moves?

	Poor			Excellent		Why?
<i>Edge drawing:</i>	1	2	3	4	5	
<i>Matrix:</i>	1	2	3	4	5	
<i>Animation:</i>	1	2	3	4	5	
<i>Agglomeration:</i>	1	2	3	4	5	

9. a) *Go to the Matrix tab*: Which family has the most species added? Which are the names of the species added?

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- b) *Go to the Agglomeration tab*: Which family has the most species added? Which are the names of the species added?

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- c) *Go to the Edge Drawing tab*: Which family has the most species added? Which are the names of the species added?

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- d) *Go to the Animation tab*: Which family has the most species added? Which are the names of the species added?

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- e) How good do you think is each method in order to identify new species added?

	Poor			Excellent		Why?
<i>Edge drawing:</i>	1	2	3	4	5	
<i>Matrix:</i>	1	2	3	4	5	
<i>Animation:</i>	1	2	3	4	5	
<i>Agglomeration:</i>	1	2	3	4	5	



10. a) *Go to the Matrix tab*: Identify a genus to which more than one species were excluded.

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b) *Go to the Agglomeration tab*: Identify a genus to which more than one species were excluded.

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c) *Go to the Edge Drawing tab*: Identify a genus to which more than one species were excluded.

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d) *Go to the Animation tab*: Identify a genus to which more than one species were excluded.

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e) How good do you think is each method in order to identify excluded taxa?

	Poor			Excellent		Why?
<i>Edge drawing:</i>	1	2	3	4	5	
<i>Matrix:</i>	1	2	3	4	5	
<i>Animation:</i>	1	2	3	4	5	
<i>Agglomeration:</i>	1	2	3	4	5	

11. a) *Go to the Animation tab*: What types of changes occurred to taxon "*Hemiphractidae*"?

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b) *Go to the Edge Drawing tab*: What types of changes occurred to taxon "*Centrolenidae*"?

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c) *Go to the Agglomeration tab*: What types of changes occurred to taxon "*Cochranella*"?

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d) *Go to the Matrix tab*: What types of changes occurred to taxon "*Bufonidae*"?

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12. a) *Go to the Edge Drawing tab*: Identify which genus shows most changes in taxonomy *AmphibiaTest2*?

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b) *Go to the Animation tab*: Execute the animation and identify which genus shows most changes in taxonomy *AmphibiaTest4*?

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c) *Go to the Agglomeration tab*: Identify which genus shows most changes in taxonomy *AmphibiaTest5*?

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d) *Go to the Matrix tab*: Identify which genus shows most changes in taxonomy *AmphibiaTest3*

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e) How good do you think is each method in order to identify changes to a taxon?

	Poor			Excellent		Why?
<i>Edge drawing:</i>	1	2	3	4	5	
<i>Matrix:</i>	1	2	3	4	5	
<i>Animation:</i>	1	2	3	4	5	
<i>Agglomeration:</i>	1	2	3	4	5	

13. In general, how good do you think is each method **in order to visualize differences and similarities between two taxonomies?**

14.	Poor				Excellent	Why?
<i>Edge drawing:</i>	1	2	3	4	5	
<i>Matrix:</i>	1	2	3	4	5	
<i>Animation:</i>	1	2	3	4	5	
<i>Agglomeration:</i>	1	2	3	4	5	

15. Any additional comments.